*Canadian Journal of*
# PUBLIC HEALTH

VOLUME 47 TORONTO, FEBRUARY 1956 NUMBER 2

## Poliomyelitis Vaccination Program in British Columbia, 1955

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A practical method of immunization against poliomyelitis became possible with the introduction of Salk vaccine. The product may become an additional tool in the public health armamentarium of the future. It is essential that as much information as possible be collected on its practicability in the field and, to that end, a study was instituted of the methods and the results of its use in British Columbia during 1955.

### Initial Planning of the Program

As it became evident in 1954 that sufficient Salk vaccine, as prepared by the Connaught Medical Research Laboratories, would become available for large-scale distribution throughout Canada, plans had to be laid for its administration. Early in June, 1954, information concerning a possible program was presented to the Minister of Health and Welfare, with a request that sufficient funds be allocated to provide the Provincial share to match the contribution from National health grants, toward the purchase of the vaccine. From deliberations of the Dominion Council of Health, it was learned that sufficient vaccine would be manufactured by the Connaught Laboratories to permit a pro rata distribution on a population basis to each Province, which would provide British Columbia with a quantity for approximately 50,000 children.

At the beginning of 1955, the Connaught Medical Research Laboratories convened a meeting of the Deputy Ministers of Health for each of the

Contribution from the British Columbia Department of Health and Welfare (Health Branch), Victoria, B.C., and the Department of Public Health, University of British Columbia, Vancouver, B.C., Dec. 28, 1955.

Provinces to relay to them information concerning changes in manufacture which would definitely delay the anticipated date of release of the vaccine until some time in April. A loss in antigenicity had been reported following the addition of merthiolate used as a preservative. As British Columbia is completely served by Health Units, it was necessary that the Unit Directors be early informed of the situation, so that they could plan Health Unit programs for the Spring, to accommodate a poliomyelitis vaccine program concentrated into a three-months schedule. A series of releases in the form of circulars was commenced through the Division of Public Health Education to keep local health services throughout the Province advised of the vaccine production and the planning.

The Division of Vital Statistics commenced the preparation of the statistical material showing the incidence of poliomyelitis by age-groups for the past five years, and studies of the numbers of children enrolled by Grades in the schools of the Province. From a study of the attack rates, it became evident that the five and six-year-olds showed the highest age-specific attack rates and a comparison with the school enrolment figures indicated that administration of vaccine to those age-groups would require practically all the vaccine that would be available. It was decided then to concentrate the program on all those enrolled in Grade 1 (irrespective of age) and those who would be entering school in September, 1955. It was proposed to administer the vaccine in three doses along the lines of the original study of the Salk vaccine, and to this end, a proposed schedule of inoculation dates for the program was drafted.

### Health Education Methods

An active public health education program was initiated. The Department of Education was consulted on the proposals, endorsed the program, and distributed information on the plans to all the schools in the Province, asking the principals to have the teaching staff speak to their classes in favour of the program. A series of news releases were prepared and circulated to the Health Unit Directors to coincide local public health education with the educational program from the Provincial Department. Written parental consent for each eligible child had to be obtained. The excellent health education coverage, coupled with the community respect for the advice of local health services on previous occasions, resulted in an acceptance ratio of 78.5%.

The British Columbia Branch of the Canadian Poliomyelitis Foundation, which is operated under the sponsorship of the Kinsmen's Club, supported the program. Additional equipment in the form of needles and syringes were supplied by this organization, while sufficient funds were earmarked for the purchase of additional quantities of vaccine, should it become available.

### Finalization of the Program

As previously stated, the original recommendations for administration of the vaccine were followed. The initial injection in the program in British Columbia was planned to commence late in April. Just prior to that date, however, Dr. Salk made the suggestion that the number of injections be altered to a two-plus-one schedule. This created a question as to whether British Columbia should remain with the originally recommended program, which

had received so much publicity throughout the Province, or, adopt the newly proposed injection schedule. Fortunately the problem presented itself while the Health Officers Council, composed of all the full-time medical health officers, was in session and it was possible to refer the matter to them for decision. It was argued that the original trials, on which the Francis report was based, analyzed results on the three-dose schedule, and a change to the two-plus-one schedule would be a departure from the experiment which had shown the effectiveness of the vaccine when the former plan was followed. This, coupled with the fact that a change would involve considerable administrative readjustment, and an intensive public education campaign, led to the decision to use the three dose schedule.

The program commenced throughout the whole Province the following week. The vaccine was flown from Toronto packed in granulated cork which had been refrigerated, and the shipment received top priority by Trans-Canada Airlines. The shipment was met at the Airport, and immediately transported to a central storage point where temperature readings were taken of the contents of each carton. Local Health Units, having estimated their requirements on signed consent cards, received vaccine which had been repackaged in the required quantities, in refrigerated cork-insulated cartons. The vaccine was transported to Health Units by air, where available, sometimes by ship, and by fast road transport to Health Units close to the central depot. In all instances, the vaccine was picked up by the Health Unit staff at destination. Local Health Services throughout the Province had complete authority in respect to local planning and local administration of the program.

## Methods of Epidemiological Study

As soon as the decision to employ the Salk vaccine in British Columbia was made, it was decided to place the entire program under epidemiological control both for administrative guidance and in order to attempt some evaluation of the product under field conditions. Thus, early in the year, the necessary machinery was set up to collect data upon the study population and particularly upon individuals in that population who subsequently developed poliomyelitis. Local health units were assigned the responsibility of keeping accurate records as to the number and ages of eligible children, those accepting vaccine, and those not accepting vaccine who were designated as unvaccinated controls. In the case of vaccinated children additional information as to the number of injections received, dates of administration, lot number and other pertinent information was secured. The system of poliomyelitis case reporting was re-organized to provide information upon the occurrence of poliomyelitis among members of the study population whether vaccinated or otherwise. Individual case reports submitted by Health Units were reviewed for adequacy and completeness of information, prior to tabulation of results.

While the above machinery was being set up representatives from this Province participated in the Joint Federal-Provincial conference of epidemiologists held at Ottawa in May. One of the objectives of this conference was to encourage co-operation by the Provinces in an evaluation study of the Salk vaccine on a national basis. As a result of the conference a number of important decisions in the overall plan of study were adopted by the various

provinces. Thus, it was decided that the evaluation study would be based solely upon the occurrence of paralytic cases in the vaccinated group and unvaccinated controls owing to the difficulties associated with the diagnosis of non-paralytic poliomyelitis. It was also agreed that comparative rates between the two study groups would be set up on the basis of age, rather than school grade, and that such comparisons would be limited to those who had received two or more injections of vaccine. In addition, all provinces agreed to submit such data covering the period of the study viz. July 1–November 30, 1955.

## Evaluation of Results

In the tables which follow are summarized the more important results of the program in this province. It should be mentioned that the study was confined to children in organized health unit areas and does not include all the children in the province who participated in the Salk immunization program.

TABLE I

Percentage distribution of children by eligibility for, and acceptance of, poliomyelitis vaccine and age, British Columbia, July 1–November 30, 1955.

| | 5 years | | 6 years | | 7 years | | Total | |
|---|---|---|---|---|---|---|---|---|
| | No | % | No | % | No | % | No | % |
| Children accepting vaccine | 14,865 | 71.7 | 22,951 | 86.9 | 7,826 | 71.1 | 45,642 | 78.5 |
| Children not accepting vaccine | 5,856 | 28.3 | 3,445 | 13.1 | 3,187 | 28.9 | 12,488 | 21.5 |
| Total children eligible for vaccine | 20,721 | 100.0 | 26,396 | 100.0 | 11,013 | 100.0 | 58,130 | 100.0 |

It is evident from Table I that the acceptance ratio for all children eligible for vaccine was 78.5% being somewhat higher (86.9%) among the six-year-old children than in the other age groups. These figures compare favourably with those reported from other areas.

Table II, which sets out the percentage distribution of children accepting

TABLE II

Percentage distribution of children accepting poliomyelitis vaccine, by number of injections received and age, British Columbia, July 1–November 30, 1955.

| Number of injections received | 5 years | | 6 years | | 7 years | | Total | |
|---|---|---|---|---|---|---|---|---|
| | No | % | No | % | No | % | No | % |
| 1 injection | 190 | 1.3 | 266 | 1.2 | 119 | 1.5 | 575 | 1.2 |
| 2 injections | 586 | 3.9 | 878 | 3.8 | 353 | 4.5 | 1,817 | 4.0 |
| 3 injections | 14,089 | 94.8 | 21,807 | 95.0 | 7,354 | 94.0 | 43,250 | 94.8 |
| Total commencing program | 14,865 | 100.0 | 22,951 | 100.0 | 7,826 | 100.0 | 45,642 | 100.0 |

poliomyelitis vaccine by number of injections received, reveals an even more satisfactory result in that for each age group and for all ages vaccinated, approximately 99% of those who commenced the program received a minimum of two injections, while approximately 95% received the full series.

In Table III is summarized the evaluation data which has been limited to a comparison of age-specific attack rates in those vaccinated and unvaccinated controls. It is realized that there are many deficiencies in an evaluation of this nature but despite their inadequacies, the data are presented for consideration.

TABLE III

PARALYTIC POLIOMYELITIS CASES AND ATTACK RATES, BY AGE AND VACCINATION STATUS, BRITISH COLUMBIA, JULY 1–NOVEMBER 30, 1955.

| Age | Number Vaccinated (2 and 3 injections only) | Number Developed Paralytic Polio | Paralytic A.R./1,000 | Number not Vaccinated | Number Developed Paralytic Polio | Paralytic A.R./1,000 |
|---|---|---|---|---|---|---|
| 5 years | 14,675 | — | — | 5,856 | 4 | 0.7 |
| 6 years | 22,685 | — | — | 3,445 | 3 | 0.9 |
| 7 years | 7,707 | — | — | 3,187 | 3 | 0.9 |
| Total | 45,067 | — | — | 12,488 | 10 | 0.8 |

It will be noted that in British Columbia no vaccinated child developed paralytic poliomyelitis, whereas it is estimated that some 36 cases of paralytic disease could be expected to occur in the vaccinated group (2 and 3 injections only) if they had not been protected. This estimate has been obtained by applying the attack rate among the unvaccinated controls to the number of children in the vaccinated group. It should be pointed out that this method of calculating the expected number of cases has been used rather than the conventional method based upon the 5-year median age-specific attack rate, since the latter data are not available. Further, 1955 has been a mild poliomyelitis year presenting an incidence below the median, all of which would have the effect of giving an abnormally high number of expected cases. At any rate, the above differences in paralytic attack rate for all age groups are highly significant ($P < 0.001$).

Finally, in Table IV are summarized data pertaining to the occurrence of poliomyelitis cases among contacts (chiefly household) of vaccinated children. A total of 38 such cases (28 paralytic and 10 non-paralytic) were recognized during the study period.

Since all of these cases were contacts of children who received vaccine from the same source, and since no vaccinated children developed post-inoculation poliomyelitis, possibly this association, which has been noted here and elsewhere, is of little or no significance. That this may be the case, is rather suggested by the fact that the majority of cases occurred well beyond an incubation period following inoculation.

TABLE IV

POLIOMYELITIS CASES IN CONTACTS OF VACCINEES, WITH ONSET INTERVAL, BRITISH COLUMBIA, MAY 18–NOVEMBER 30, 1955

| Cases in contacts of vaccinees with onset interval | |
|---|---|
| Total cases | 38 |
| Paralytic | 28 |
| Non-paralytic (confirmed*) | 4 |
| Non-paralytic (unconfirmed) | 6 |
| Interval between inoculation of vaccine and onset in contact | 38 |
| Less than 1 month | 5 |
| More than 1 month | 33 |

*on basis of Cerebro-spinal fluid findings


## SUMMARY

A study of the methods and results of the field experience with Salk vaccine in British Columbia during 1955 has been presented. The early details of the planning of the program are presented, indicating the amount of consultation and the numbers of people that become involved in organization of such a program before its finalization. The development of an epidemiological study is outlined and the comparative results between vaccinated and unvaccinated controls are presented, leading to the conclusion that the administration of the vaccine did prevent the development of some cases of paralytic poliomyelitis.


## THE MEDICAL OFFICER OF HEALTH AND HIS WORK

"The physician who is going to get on in public health should have certain qualities which are not invariably found in our profession. In addition to a real interest in community health, he must be able to put medical problems in non-technical language. He must be able to endure with forbearance challenges to his opinions and discuss them without heat or rancour . . . Above all, he must be able to sense public opinion and to judge when the moment to advocate some particular project is opportune and when it would be wise to defer it for a time.

Statements are sometimes made that the life of the local authority official and of the junior in a public health department is often one of disappointment and frustration. There are, possibly, local authorities some of whose members treat their officers with scant courtesy and neglect their advice, but I have had no personal experience of them. . . . Again, there are heads of departments who do not know how to treat their assistants, but this is rare and is not confined to the public health service. When a man is not happy with his local authority and is disliked by his staff there is generally something wrong with him and he would be a misfit wherever he was.

There is a general misconception to the effect that "public health" is an easy life, with regular office hours and long holidays. Nothing could be further from the truth, at least, for the medical officer of health himself or his principal assistants. He must read widely. He has much field and office work, and innumerable committees to attend, most of which are interesting. Personally, I have always had to try to squeeze into the day more than it would conveniently hold, and have not had any real leisure for years. But, despite all this, I have no regrets about my choice of career. It has given me great opportunities, unforgettable experiences, and, what I value most, a vast number of real friends."

Sir Allen Daley, M.D., F.R.C.P., D.P.H.:
Brit. Med. J. 1951, II: 434

# Dental Care Plans for Young Children

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UNTIL quite recently, total effort aimed at controlling dental disease has been founded upon early and systematic treatment. As preventive methods are applied on an ever-increasing scale, it seems safe to assume that the pressure for dental care will be somewhat relieved and that treatment needs will diminish. Nevertheless, the necessity for marshalling available resources in order to provide the most effective dental care will continue to be an important area of public health responsibility. In Canada, the difficulties of securing adequate dental care for everyone arises from the increasing population, shortage of dental personnel, the public attitude towards dental care, and their ability to pay, as well as the unique nature of dental disease.

It has been estimated that Canadians receive only about one quarter of the dental care they require, despite a current annual expenditure of some $70 million for dental services, an amount which probably reflects the present upper limit of the service capacity of the entire dental profession (1). In Ontario, the Provincial Health Survey showed that about half of the province's dentists were fifty years of age or over and that a growing population faces the prospect of a rapid falling off of dentists in the upper age brackets and the enrolment of students in dental schools is far short of the number required in the foreseeable future (2). Wide variation in the distribution of dental practitioners in relation to population adds a further complicating feature for there is a distinct tendency for dentists to practice in urban saturation areas resulting in a corresponding shortage of dental personnel in rural or geographically isolated areas.

Although public appreciation of the value of preventive measures and adequate dental care has never been greater, many people still consider dental defects as a necessary evil and regard the loss of teeth and the wearing of artificial dentures as a natural sequence in the process of ageing. Equally important is the evidence derived from the Canadian Sickness Survey which shows the amount of dental care received is a function of the family income status (3). This observation is in accord with studies in the United States which indicate that the amount of dental care received is related closely to the ability to pay.

Mention must also be made of certain characteristics inherent in dental disease. Dental defects differ from most other ailments in that they accumulate as a result of neglect. Whereas many physical disabilities may resolve themselves one way or another without treatment, dental defects, if disregarded,

accumulate like compound interest. Such data as are available suggest that dental caries continues its attack as long as teeth remain in the mouth. Neglect permits extension and dental defects not only accumulate but frequently become more complex.

The recognition of these factors, individually and collectively, has had a bearing upon the provision of dental care. Experience with experimental dental care programs, such as the Richmond (4) (5), Sturgis (6) and Woonsocket (7) (8) studies, tells us that dental care commencing at a very early age and furnished on an annual basis requires only a fraction of the service time necessary to meet accumulated needs and therefore makes more effective utilization of dental personnel. The most useful dental care plan is undoubtedly the one which utilizes available resources, facilities and dental manpower in the most efficient, most economical manner against the cumulative nature of dental disease. Two plans are favoured in overcoming this problem. One method is to commence with infants only and thus start a maintenance care program with a clean slate. Admittedly this approach involves writing off, certainly as far as publicly-financed programs are concerned, the dental needs of that segment of the population in age groups above the highest one selected for care. To win public acceptance of this approach necessitates considerable educational effort. The other method is to require the candidate to have his dental needs completely met before he is accepted or reinstated for regular maintenance care.

In the matter of financing dental services, prepayment, postpayment and publicly supported plans have each received attention as methods for budgeting dental expenses and offering regular dental care to more individuals. A brief review of the principles involved in each of these methods therefore precedes a consideration of some of the plans presently in existence or being contemplated.

## Prepayment Plans

Prepayment plans are predicated on the principle of insurance. They provide benefits of fixed value, either as services or cash indemnity as a matter of right to the insured person, irrespective of his actual economic need at the time benefits are claimed, out of prearranged contributions by the insured. Contributions may be supplemented by the employer, the state or both. The costs for these benefits are distributed in such a manner that the premium payment of known amount is substituted for a charge of unknown amount occurring at an unpredictable time. To protect themselves financially against selecting the poor risks in the population, voluntary hospital service and medical care plans employ one of two methods. The most common is group enrolment. Unless a certain percentage of an employee group is willing to subscribe to a voluntary plan, a member of that group cannot enroll at the usual premium rates. The alternative method of individual enrolment is to exclude persons or physical conditions requiring treatment or likely to need it. With compulsory plans, on the other hand, there is an automatic pooling of risks and resources.

Because of the widespread distribution and frequent occurrence of dental

defects and because every individual is a potential victim of dental disease, there has been some doubt in the past as to whether dental care can be termed an insurable risk. Nevertheless, sufficient epidemiological data are available to suggest that the laws of mathematical probability are applicable to nearly all dental conditions. Pelton (9) expresses succinctly, "nothing is so certain as the loss of permanent teeth. This loss is mathematically predictable, the only element of uncertainty being the time at which the event occurs." It is worth mentioning that life insurance companies deal with the same problems, the only uncertainty is the exact date on which a given policy will be paid. From a theoretical standpoint, it appears that dental risks are insurable provided a sufficient number of economic units agree to pay and are able to pay a proportionate premium for good dental care consistent with actuarial equity.

This poses the problem of recruiting a sufficient number of such economic units. Dental defects lack the drama of many medical conditions, yet their recurrent annual attacks may in the end prove to be at least as costly as the less frequent but more spectacular medical illnesses. Moreover, if it is true, that people are now paying very nearly the top limit of what they are willing to pay in advance for health services, the promotion of voluntary dental prepayment plans on a wide scale may be much more difficult than has been the selling of insurance for hospitalization and physicians' services.

The writer knows of only two private practitioners who have initiated prepayment dental care plans for children. In both instances the scope was too limited to permit definite conclusions, and the plans were subsequently discontinued.

*I.L.W.U.-P.M.A. Plan*

A consumer-sponsored dental coverage plan devoted exclusively to children has recently been established along the Pacific seaboard of the United States under sponsorship of the International Longshoremen and Warehousemen's Union–Pacific Maritime Association Welfare Fund (ILWU-PMA) (10) (11). Dental care, excluding orthodontics, cosmetic dentistry and such major surgery as is covered under the ILWU-PMA medical plan, is made available to children below age 15 of union members in certain coastal cities of California, Oregon and Washington. Two plans are offered, with persons eligible for welfare coverage having individual selection of the type of dental care facility preferred for their children. One is based on a closed panel of dentists employed in clinics under direct contract with trustees of the Welfare Fund. The second plan is one of indemnification, the vehicle for the insurance operation being an insurance company. During a trial period, the company is assuming all costs of claim payment and taxes in order to gather statistics upon which to base a sound program. It is reimbursed by the Fund for the exact amount it pays members of the profession for care rendered, plus 2%. Under the indemnification program, children are allowed up to a maximum of $75 for care until September 30, 1955, based upon the median fee established by surveys of the profession. In addition, insurance up to $150 per year, is provided for accidental injury to the teeth in accordance with the fee schedule. Care rendered in excess of the $75 limit or dentists' fees exceeding those of

the indemnification schedule are subject to negotiation with parents who then assume the additional charge. Parents are permitted complete freedom of choice in their selection of dentists. In adopting this program, the Welfare Fund stressed its two-fold purpose, namely preventive dentistry, and as much restorative care of high quality as possible, supplemented by an extensive program of dental health education.

*Group Health Dental Insurance Plan*

Another plan, which extends coverage to immediate dependents of subscribers, has recently been established under sponsorship of the First District Dental Society in the New York Metropolitan Area, by Group Health Dental Insurance, Inc. (12). This non-profit corporation operates under the supervision of the New York State Department of Insurance and receives some financial and administrative support from its parent organization, Group Health Insurance, Inc. Subscribers are required to be members of an employed group of at least 40 persons of whom at least 75% enroll. The problem of accumulated defects in new patients coming under the plan is met by requiring them to pay for the correction of existing defects up to $150. Services beyond this amount are paid for by the plan. Thereafter the plan meets the cost of complete maintenance care for families with income below $5,000, the dentist accepting the Group Health Dental Insurance payment as full remuneration for his services. Indemnities are provided toward costs for families in higher income brackets where the dentist makes his customary charges. An additional feature permits subscribers to elect a 50% indemnification arrangement for approximately 61% of the full premium. Comprehensive services, including those of specialists, are provided in the offices of participating private practitioners, the patient having complete freedom as to choice of dentist. A new regulation in New York State requires a co-insurance provision in all non-profit hospital, medical and dental plans, because of the need for establishing operating reserves. Participating dentists therefore agree to accept in full settlement of the portion of their claims for which the plan is liable, an amount that represents their pro-rated share of the funds available. They are thus, in effect, underwriters or re-insurers.

*Canadian Dental Association Proposals*

The Canadian Dental Association, through its Health Insurance Studies Committee has drafted a ten-point statement of principles relating to prepayment dental care plans (13). Furthermore, in 1952, the Association proposed a trial prepayment dental care plan for children up to age six (14). Each year, following inception of the program, three-year old children would become eligible for enrolment in the plan. Participating dentists and dental hygienists would provide twice yearly clinical and bite-wing x-ray examination; prophylaxis; instruction in preventive oral hygiene, diet and nutrition; extractions; amalgam, plastic, silicate and cement restorations as well as emergency treatment for relief of pain. A subscriber joining the plan would pay a registration fee of $1.00 and a monthly premium ranging from $1.50 for the three-year old to $2.50 for the six-year old child. After the first year of operation premium rates would be reviewed. A fee schedule has been sug-

gested and participating dentists would accept such fees as full remuneration for services rendered. By commencing with three-year old children, the plan would avoid the problem of accumulated needs. Despite these recommendations, however, relatively little of a concrete nature has been accomplished so far in Canada.

*Chrietzberg Proposals*

In the United States, a pilot study in three selected communities has been proposed by Chrietzberg (15), one in which services would be rendered by private practitioners in their own office, one in which a clinic would be utilized, and a rural community which would be served by a mobile unit. The plan calls for the admission of at least 50 preschool, kindergarten and first grade children for routine dental treatment in the first year. Each year thereafter it would include a new starting group, the groups previously admitted continuing to receive such annual maintenance care as required, so that the scheme would be in full operation within eight years. A larger initial premium is proposed to meet the problem of accumulated backlog. The starting cost would be $15 per child, with the State paying for indigent cases up to one fourth of the total number of children treated. Thereafter the fee would be $7 in years when topical fluoride applications are required and $3 in other years, total cost during an eight-year period amounting to $48 per child.

*Permanente Plan*

In Oakland, California, the Permanente Foundation has given consideration to the extension of dental coverage for children of subscribers to its medical program (16). Here, the problem of accumulated backlog would be met by payment following the patient's first appointment. Dental service is presently rendered under a group practice arrangement in a fixed clinic. A fee of $5 is charged at the first appointment which includes clinical and x-ray examination and prophylaxis, as well as an impression of the teeth when orthodontic consultation is indicated. Premiums vary between $6 and $15 per year depending on the age of the child, with a surcharge of $1 for each six-monthly clinical and x-ray examination and prophylaxis. An additional fee of $1 is charged for each cavity restored and for each tooth extracted.

## Postpayment Plans

Postpayment plans resemble the familiar commercial budget plans in that they are based on the installment purchasing principle. Such plans permit the individual to defray the cost of dental care by making payments of specified amounts at periodic intervals subsequent to the receipt of dental services. The Canadian Dental Association has given some leadership in studying postpayment plans and has prepared a six-point statement of principles relating to such plans (17). In 1954, approximately 50 dental societies were sponsoring some form of postpayment plan in the United States (18). While none is known to exist in Canada at present, considerable interest is manifested in the western provinces in this method of financing dental care. This measure undoubtedly meets a real need for a convenient way of meeting large dental accounts.

## Publicly Supported Plans

Publicly financed and administered dental care programs have a long record. The school dental program is, perhaps, the most familiar example. Source material is abundant and scientific studies and appraisals of their operation are quite numerous. It is therefore not difficult to arrive at conclusions on the merits of the broad policies adopted for the organization and administration of such plans. In many instances the impetus for these services came from school medical inspection programs. If dental inspections were included, they followed the classic pattern wherein physical defects were noted and notice sent to parents of children in cases where treatment was indicated. These developments in turn led to the provision of remedial treatment for children otherwise unable to obtain it, either through dental clinics or through contractual arrangements with private practitioners. Publicly financed dental care programs in most of the larger urban centres of this continent originated in this way. Initially, services were often limited to restoration and extraction of teeth as well as relief of pain, but over the years there has been a distinct tendency to provide broader coverage aimed at prevention and control of dental disease and integration with the sponsoring agency's general health program.

Full-time public dental care programs for children are found principally in city health departments or departments of fairly populous areas. Despite the more adequate financial possibilities and resources in metropolitan areas which are blessed with facilities such as clinics, hospitals, more plentiful dental manpower and well organized dental societies, many programs have in the past fallen short of expectations for a variety of reasons including lack of personnel, inadequate funds or organizational difficulties. Moreover, a competent administrator may be hampered by public attitude which divests parents of any responsibility for the dental health of their children and regards the free and unhindered utilization of tax-supported clinics as a matter of right irrespective of any considerations for a systematic approach against the problem of accumulated treatment needs. Intensive effort in the form of health education may do much to remedy this state. Programs in large urban centres such as Calgary, Toronto, Vancouver and Victoria have been or are being successfully reorganized on the basis of utilizing available facilities for the largest number of children in lower age groups whose treatment needs can be met on a current basis, rather than attempting to provide limited services to all children.

### *British Columbia Community Dental Clinics*

Community dental clinics in British Columbia provide an example of a publicly supported part-time service to provide remedial dental care, excluding space maintenance, orthodontics and topical fluoride applications, to children from the preschool age level up to grade 3 (19). Dental health education is a significant feature of the program. Local committees are responsible for the organization and staffing of these clinics and the Provincial Department of Health and Welfare grants financial support to the extent of 50% of actual total cost. The balance must be found from local resources such

as the registration fee required from children admitted to the clinics. The plan is unique in that priority is extended to preschool children and grade 1 pupils, always with at least one preschool child for every three grade 1 children enrolled in the clinic. With emphasis placed on maintenance care the problem of accumulated defects would therefore be relatively small, a fact which is reflected by the decline in the average per capita cost of treatment from $18.46 to $12.78 during the first four years of operation.

*British Columbia Dental Welfare Plan for Children*

In 1953, the Welfare Branch of the Department of Health and Welfare, in cooperation with the British Columbia Dental Association, inaugurated a supplementary program of dental care for younger dependents of persons in receipt of social assistance (20). Limited to children up to age 8 during the first year of operation, extension to successively older age groups was visualized on a year to year basis depending on actual circumstances. Services are rendered on a fee for time basis in the offices of private practitioners, the British Columbia Dental Association administering the program as a public service. Integrated within this program, also, are arrangements for instruction in the prevention of dental disease and encouragement for regular and continuing dental care.

*New Zealand National Dental Service*

This review would be incomplete without some reference to the National Dental Service of New Zealand which comprises the School Dental Service commenced in 1919 and the Adolescent Dental Service introduced in 1947 (21) (22). The unique feature of the school dental service is its dental nurse personnel. The service holds patronage to children of preschool age and those in infant classes as well as school-age children. After receiving initial treatment, all enrolled children are re-examined every six months and given any further treatment necessary over a specified period of years. The age groups and other categories eligible for dental care must at no time exceed the number that can be kept under regular treatment by the dental personnel available. The services are provided free of charge and are now available up to 16 years of age, the acceptance rate being practically 100%. The plan provides against accumulation of dental defects by commencing with preschool age children. In addition, patients who default in their attendance for a year are liable to be struck off, but may be reinstated after having been made dentally fit at their own expense. While such a plan may be unsuited to Canadian conditions, it is nevertheless noteworthy for the relatively high level of satisfaction of dental treatment requirements in New Zealand school children (23).

## Conclusion

This paper reviews dental care plans for young children and describes a number of existing or proposed programs. These programs provide valuable experience to guide us in the promotion of dental care for children which remains one of the large areas of public health responsibility. Preventive techniques do not eliminate the need for regular dental care and the develop-

ment of effective dental care programs remains an important community goal. Recognizing the obstacles to be overcome and approaching the problem from different backgrounds and viewpoints, the dental profession and public health authorities now have a common interest in assuring that such programs meet certain recognized criteria of effectiveness. There is both the need and the opportunity for these two groups to work in close collaboration, planning jointly and bringing together their special skills and resources in the interests of improved dental care, high standards of administration and economical use of available facilities and funds in this essential field of community service.

## REFERENCES

1. Academy of Dentistry, Toronto. Brief in Support of the Fluoridation of Water Supplies of Metropolitan Toronto. Submitted to the Works Committee. Council of the Municipality of Metropolitan Toronto, 4 April 1955.
2. Report of the Ontario Health Survey Committee, Section D, Dental Facilities and Services, Volume 1, p. 185, 1950.
3. Dominion Bureau of Statistics and Department of National Health & Welfare, Canadian Sickness Survey 1950–51, Special Compilation No. 2 Family Expenditures for Health Services by Income Groups (National Estimates), Ottawa, July, 1953.
4. Waterman, G. E. and Knutson, J. W.: Public Health Reports, 1953, *68*: 583.
5. Waterman, G. E. and Knutson, J. W.: Public Health Reports, 1954, *69*: 247.
6. Donnelly, C. J.: Am. J. Pub. Health, 1955, *45*: 1029.
7. Law, F. E., Johnson, C. E. and Knutson, J. W.: Public Health Reports, 1953, *68*: 1192.
8. Law, F. E., Johnson, C. E. and Knutson, J. W.: Public Health Reports, 1955, *70*: 402.
9. Pelton, J. W.: Payment for Dental Services (in Pelton J. W. and Wisan, J. M. ed. Dentistry in Public Health, ed. 2, Philadelphia, Saunders, 1955, p. 264.)
10. California State Dental Association, Bulletin, ILWU-PMA Welfare Fund Pilot Dental Care Program for Children. J. Dent. Children, 1955, *22*: 33.
11. Two Labor Union Dental Programs reported to State Secretaries. Dental Health Highlights, 2:7, 1 February 1955.
12. Palmer, B. B.: Personal Communication, July 1954.
13. Canadian Dental Association, Report of Health Insurance Studies Committee, p. 114, Transactions, Annual Meeting, 1954.
14. Canadian Dental Association, Report of Health Insurance Studies Committee, pp. 59–74, Transactions, Annual Meeting, 1952.
15. American Dental Association, Council on Dental Health: Summary of Available Information on Prepayment Dental Care Plans. Chicago, The Association, 1953.
16. Naismith, R., Romick, F., and Jan, H.: The Permanente Dental Group. In American Dental Association, Council on Dental Health. Summary of Available Information on Prepayment Dental Care Plans. Chicago, The Association, 1953.
17. Canadian Dental Association, Report of Health Insurance Studies Committee, p. 115, Transactions, Annual Meeting, 1954.
18. American Dental Association, Bureau of Economic Research and Statistics: J. Am. Dent. A. 1954, *48*: 711.
19. McCombie, F. Report of the Division of Preventive Dentistry (in Public Health in British Columbia, Annual Report of the Health Branch, 1954) p. 66.
20. McCombie, F.: Personal Communication, October, 1954.
21. Saunders, J. L.: International Dental Journal. 1951, *1*: 1.
22. Fulton, J. T.: Experiment in Dental Care. World Health Organization: Monograph Series No. 4, Geneva, 1951. 87 pp.
23. Fulton, J. T.: Am. J. Pub. Health, 1951, *41*: 76.

# Pleurisy with Effusion—Its Significance and Modern Treatment

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IT is proposed in this paper to discuss two broad statements regarding pleurisy with effusion. The first is "Pleurisy with effusion is not, in itself, a disease entity" and the second that "Pleurisy with effusion is tuberculous until proven otherwise." If a large number of cases of pleurisy with effusion were reviewed it would be found that, except in an extremely small percentage, the source of the pleural effusion was not in the pleura itself, but in the lung, heart or oesophagus, the chest wall, or an extrathoracic organ. Pleurisy with effusion is an out-pouring of fluid by the pleural membrane in response to some noxious stimulus. If an irritative stimulus, it may be infective, traumatic, neoplastic or some other irritant agent. It may also be dynamic, a point to which reference will be made later.

Let us discuss the etiology of pleurisy with effusion under the headings just outlined. An irritative stimulus can be infection, traumatism, neoplasm or pulmonary infarction.

The infective causes of pleurisy with effusion are, tuberculosis, bacterial and viral pneumonias, lung abscess and other inflammatory processes within the lung.

Injury to the chest wall may in many cases result in haemothorax but, in some cases, where the injury is not lacerating in character and there is no bleeding, the response to trauma may be a serous pleural effusion without blood.

Another irritative cause of pleurisy with effusion and one of the most common causes, is tumour. This can, of course, occur in the lungs, e.g., bronchogenic carcinoma. However, there is one primary tumour of the pleura that can lead to pleurisy with effusion, presumably by irritation, and that is mesothelioma of the pleura. It would appear that mesothelioma of the pleura is practically the only condition leading to pleurisy with effusion that arises in the pleura itself.

Finally, there should be mentioned one additional irritative cause of pleurisy with effusion which is frequently ignored, that is, pulmonary infarction. This condition, and the resulting pleurisy with effusion, are becoming more and more frequently recognized; and, since the infarction occurs in the lung, and produces a pleural effusion, presumably by irritation, it points up again the accuracy of my original statement that practically all cases of pleurisy with effusion arise elsewhere than in the pleura itself. In this connection, it should be pointed out that the effusion in pulmonary infarction may be blood-tinged. Consequently, not every blood-tinged pleural effusion is indicative of neoplasm.

*Dynamic.* Since the pleura is a semi-permeable membrane, fluid can pass

Presented at the annual meeting of the Atlantic Branch of the Canadian Public Health Association held in Kentville, Nova Scotia, November 10, 1955.

into the pleural sac as the result of alteration of pressures on either side of the pleural membrane. The outstanding example of this type of pleural effusion occurs in congestive heart failure. This is a rather frequent cause of pleural effusion and should not be ignored. Furthermore, this adds additional support to the original statement that the source of pleurisy with effusion is practically never within the pleura itself. In the case of congestive heart failure, the original source may be classified as being in the heart, or at least in the pulmonary vascular bed.

A few miscellaneous causes of pleurisy with effusion should be mentioned. These include rupture of an intrathoracic viscus, such as the oesophagus or the thoracic duct. Papers describing spontaneous rupture of the oesophagus are becoming more and more frequent in the thoracic surgical journals these days, and this should certainly not be ignored as a cause of pleurisy with effusion. Rupture of the thoracic duct happens infrequently, but when it does occur, it is of extreme importance. Naturally, rupture of the thoracic duct will result in a chylous effusion, a point which will be discussed later.

Finally, an intra-abdominal organ may be the source of a pleural effusion. This is extremely rare, but one could quote rupture of an amoebic abscess of the liver into the pleural cavity as a very occasional cause of a pleural effusion. Pleurisy with effusion also occurs in Meigs' Syndrome, in association with a fibroma of the ovary.

It is true that many of the sources of pleural effusion that have been mentioned are not common; in fact most are far less common than tuberculous pleurisy with effusion. They are mentioned not to create confusion, nor to upset a neatly-packaged conception in our minds, but for two reasons. First, because they exist and must be treated with diagnostic respect and, secondly, to emphasize my second original statement, that it is unsafe to stand or fall with the conception that "pleurisy with effusion is tuberculous until proven otherwise".

The statement that pleurisy with effusion is tuberculous until proven otherwise is based on statistics. As such, it suffers from the common fallacy, inherent in many statistical summations, of ignoring the source from which the statistics are collected.

It is quite true that pleurisy with effusion will be most frequently tuberculous in origin if the statistics are those collected by a tuberculosis institution or by a Department of Health. The statement will be distinctly and glaringly untrue, however, if the statistics are collected from a general hospital or from an office practice of medicine.

To illustrate this point, it is worth quoting to you a report of a statistical study of 436 patients with pleurisy with effusion, which appeared in the New England Journal of Medicine (1) in January of this year. These figures were collected at random from the charts of a general hospital. Most of us may be rather surprised to note that in this study the most common cause of pleural effusion was not tuberculosis. Of the 436 cases of pleural effusion, actually 50% were caused by a malignant neoplasm, mostly carcinoma of the bronchus. Ten per cent were the result of congestive heart failure, 10% were the result of infections, including tuberculosis, so that it is quite clear that tuberculosis played a very small part as a cause of pleurisy with effusion in this particular

collection of figures. Twelve per cent were caused by miscellaneous conditions excluding tuberculosis; and the final 18% were the result of undiagnosed conditions, in which tuberculosis had apparently been excluded. It is quite clear, therefore, that, depending on the source from which statistics are collected tuberculosis may play a very large part as a cause of pleural effusions, or it may have a very small and unimportant role.

Having made a broad and sweeping generalization, I should now like to particularize. I have no intention of suggesting that tuberculosis is unimportant as a cause of pleurisy with effusion; actually the contrary is true. But the fact is that the statement "Pleurisy with effusion is tuberculous until proven otherwise", has been so heavily emphasized that there has arisen a tendency to disregard the last three words, "until proven otherwise", and to transform the statement into "Pleurisy with effusion is tuberculous". It is this tendency that is to be deplored. It is true that, in any given case of pleurisy with effusion, particularly in the younger age group, if no other cause can be found, the effusion is probably tuberculous. But this is no occasion for disregarding the other causes. It might therefore be wise, if we require a succinct statement for teaching purposes or purposes of emphasis, to alter the statement to something like this: "So-called idiopathic pleurisy with effusion is almost always tuberculous".

I think we have established rather clearly that, in the overwhelming preponderance of cases, the source of pleurisy with effusion is not the pleura itself. I think I have also established the fact that the statement "pleurisy with effusion is tuberculous until proven otherwise", is one which must be handled with great care, and with due regard to the source from which statistics are collected.

## Diagnosis

Since I have already indicated that pleurisy with effusion has so many basic causes, it is quite clear that treatment must be considered with due regard to the diagnosis.

In view of the diverse etiology of pleurisy with effusion, discussion of the diagnosis must of necessity be rather sketchy. Nevertheless, I should like to take a few moments to stress certain diagnostic points which I have found to be helpful.

### *Physical Examination*

The usual physical signs of pleurisy with effusion are obvious to any trained observer, and, in any discussion of pleurisy with effusion, physical examination is usually passed over lightly. There are however at least two diagnostic points that I should like to stress and both are based on physical examination. One of these is in connection with clubbing of the fingers. In my experience, clubbing of the fingers never occurs in tuberculous pleurisy with effusion. When the diagnostician notes clubbing of the fingers in a patient with pleurisy with effusion he should immediately become suspicious of one of two conditions.

First, Empyema—and I can recollect a patient who was treated for several months as a case of tuberculous pleurisy with effusion, without aspiration, and who was subsequently admitted to our hospital. One of the obvious features in her physical examination was clubbing of the fingers, which made us im-

mediately suspicious of empyema, the presence of which was confirmed by the aspiration of 1000 cc. of thick purulent material from the pleural space. The second condition whose presence is suggested by clubbing of the fingers is pulmonary neoplasm.

In other words, therefore, when clubbing of the fingers is noted on physical examination in a case of pleurisy with effusion one should be suspicious of either empyema or carcinoma of the lung.

The second diagnostic point is that physical examination is the only procedure, or at least the simplest procedure that may classify a pleural effusion as due to cardiac disease with congestive failure, rather than a condition arising in the lung or the pleural space.

*X-Ray of Chest*

The diagnostic procedure that is usually carried out earliest in a case of pleurisy with effusion is the chest x-ray. I mention this merely to indicate that it is surprisingly uninformative in most cases. As a general rule, x-ray examination of the chest indicates that a pleural effusion is present, but usually gives no information as to the cause or underlying background of the effusion.

*Diagnostic Aspiration*

This is probably one of the most important procedures in the etiologic diagnosis of pleurisy with effusion, even though it is a very old and undramatic procedure. Perhaps for these reasons, it has been ignored in a surprising number of cases. The case that I mentioned in connection with the discovery of an empyema is a case in point. Had this patient's chest been aspirated months previously, the true diagnosis would have been obvious. I should like to stress, therefore, that of all things, diagnostic aspiration should not be neglected in any case of pleurisy with effusion. A very large amount of valuable information may be obtained by this procedure. For example:

*Character of the fluid* may be determined as serous, purulent, chylous, etc.

*Bacteriologic examination* of the pleural fluid may aid in the diagnosis of tuberculosis or other infective cause. Here I should like to make a rather important point. In a tuberculous pleural effusion, if one expects to demonstrate tubercle bacilli, one must remove all the fluid, centrifuge it, and examine the sediment. One cannot expect to demonstrate tubercle bacilli in a test-tube-full of pleural fluid. It is commonly stated that it is difficult to demonstrate tubercle bacilli in a tuberculous pleural effusion. If the method outlined is followed I believe that tubercle bacilli will be demonstrated in a large percentage of cases.

*Cytologic examination* of the pleural fluid may help in ruling out or establishing the presence of a pulmonary or pleural neoplasm.

*Certain more recent and specialized procedures* may be of assistance in establishing the basic cause of a pleural effusion.

*Scalene Node Biopsy.* This is not always of assistance, but it is surprising how often this procedure may give one a diagnostic lead, particularly in cases of tuberculosis or pulmonary neoplasm.

*Pleural Biopsy.* This may be done in one of two ways: (1) Needle Biopsy (2). Biopsy of the parietal pleura may be carried out using a Vim-Silverman needle, a procedure which may, at times, aid in the diagnosis of tuberculosis

or neoplasm as a background for the pleural effusion. (ii) Pleural biopsy (3) may also be carried out through a small thoracotomy incision.

I mention these procedures not to indicate that they are usually required, but merely to suggest that our diagnostic resources are not exhausted after aspiration and bacteriologic and cytologic examination of pleural fluid.

*Diagnostic thoracotomy.* As a result of the numerous advances that have been made in thoracic surgery in recent years, this procedure has become much more common, and is now being extended to the etiologic diagnosis of pleurisy with effusion. In this connection, a very interesting paper by Stead and his co-workers (4) appeared in the American Review of Tuberculosis in April of this year. In this investigation, the writers, for certain reasons, did diagnostic thoracotomy in 15 patients with tuberculous pleural effusions. In 12 of these 15 cases, a definite parenchymal tuberculous focus was actually found. In these cases, it appeared that the cause of the pleurisy was actual rupture of a caseous parenchymal nodule into the pleural space. I should like to stress this point, not for the purpose of indicating that all pleural effusions should be diagnosed and treated by thoracotomy, but to emphasize that a very large proportion of tuberculous pleural effusions are caused, not by some mysterious agency such as pleural sensitization, but by the presence of an actual tuberculous focus in the lung, which has ruptured into the pleural space. In other words I submit to you that tuberculous pleurisy with effusion is actually pulmonary tuberculosis complicated by an effusion, not an entity in itself. This is the reason why statistics always indicate that pleurisy with effusion will be "followed" by pulmonary tuberculosis in a large proportion of cases. It is not a case of pleurisy with effusion being "followed" by tuberculosis. Pulmonary tuberculosis was originally present, either masked by the pleural effusion, or too small to be visualized by x-ray. If we accept this as a usual situation, and I think we must, we are being somewhat remiss in our treatment of tuberculous pleurisy with effusion. It would appear from this study, that tuberculous pleurisy with effusion should be treated as actual pulmonary tuberculosis. That being the case, perhaps we should treat these patients longer and more intensively than we have done in the past.

## Treatment

Since I have stressed throughout this discussion that pleurisy with effusion is never primary, and is brought about by a variety of causes, I have placed myself in the unfortunate position of being unable to outline a routine regimen of treatment in this condition. It is obvious that, if pleurisy with effusion has many causes, it is not the pleurisy with effusion that must be treated—it is the underlying cause to which our therapeutic efforts must be directed.

For example, in tuberculosis, we believe in aspirating pleural fluid so long as the fluid continues to form. But, other than this, we treat our patients with pleurisy with effusion in the same way as those with pulmonary tuberculosis, namely by bed rest, antimicrobial therapy and surgery. In the case of pleurisy with effusion, the surgery should consist of decortication, and resection of any tuberculous foci which may be present in the pulmonary parenchyma.

If the pleurisy with effusion has its origin in pneumonia, either viral or bacterial, it is the pneumonia rather than the effusion which must be treated.

In other words, the patient must have bed rest, nursing care and antimicrobial therapy. If this pleural effusion becomes an empyema, it must, of course, be treated by topical and general antibiotics or by enzymatic digestion with either streptokinase-streptodornase or trypsin, or, at a later stage, surgery may be necessary, such as open thoracotomy or decortication.

If the effusion has a neoplastic origin, it is the neoplasm which must be treated by surgery, radiation, radioactive gold or some similar procedure.

If the pleural effusion has its origin in congestive cardiac failure, it is the heart which must be treated, for example, by digitalis, diuretics, and a low sodium diet. In such cases, it is usually wise to aspirate the effusion, at least on one occasion.

If the pleural effusion has its origin in a pulmonary infarction, treatment must be directed specifically to the prevention of further embolism and infarction, usually by the use of anticoagulants or vein ligation, or both.

Spread to the pleural cavity of fluid from other intrathoracic organs may occur as a result of rupture of the thoracic duct with chylothorax. In such a case, it is the underlying condition that is treated, (i.e., the rupture of the thoracic duct) by aspiration, high fat diet, surgery, or all three. A condition that is now receiving widespread emphasis in the literature as I mentioned earlier, is spontaneous rupture of the oesophagus, which usually results in a pleural effusion. In such a case, treatment is directed at the underlying condition, and consists of emergency surgery to close the oesophageal rupture.

If the pleural effusion is traumatic in origin, usually resulting in a hemothorax, again it is the underlying condition which is treated, and surgery is frequently required to close a bleeding vessel. It is in such cases also, that enzymatic digestion assumes great importance, and many cases have been reported of satisfactory treatment of hemothorax by the use of SK-SD or trypsin.

The pleural effusion in Meigs' Syndrome disappears dramatically after oöphorectomy.

If there is any feature of this discussion that strengthens my thesis that pleurisy with effusion is practically never primary, I believe that it is this outline of treatment. It is quite obvious that every point in this discussion of therapy indicates that treatment of pleurisy with effusion is never directed toward the pleura itself, but always consists in the treatment of the underlying condition that has resulted in the pleural effusion.

To summarize, therefore, I shall merely re-word the two sweeping and controversial statements that I made at the beginning of this discussion and which I hope are now no longer controversial; namely, (1) that care must be exercised in interpreting the statement that "pleurisy with effusion is tuberculous until proven otherwise" and (2) that "pleurisy with effusion is practically never primary, even when it is tuberculous in origin."

REFERENCES

1. Leuallen, E. C., and Kerr, D. T.: New Eng. J. Med., 1955, *252*: 79.
2. DeFrancis, N., *et al.*: New Eng. J. Med., 1955, *252*: 948.
3. Small, M. J., and Landman, M.: J.A.M.A., 1955, *158*: 907.
4. Stead, W. W., Eichenholz, A., and Stauss, H.-K.: Am. Rev. Tuberc. & Pulmonary Diseases, 1955, *71*: 473.

# Television—A Challenge Ahead

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IN the world of health today, it has become all but axiomatic that the emphasis has shifted from cure to prevention. And slowly moving into the forefront of this vast field of preventive medicine, which to the public health worker covers everything from sanitation to geriatrics, is the practice of health education; health education—in the wide sense of striving to make the public aware of the facilities for health which are available to it and which can be available to it, of progress in the field of medicine and public health, as well as of good health practices.

Because our classroom is so large, our teachers and our tools are many. Our teachings are spread through personal contact—through the sanitarian working in the field and the nurse going into the home. And, as well, they are spread through the media of mass communication, which until today has meant radio and the newspaper.

Today we are confronted by a new medium of mass communication—television, in many ways the most powerful medium of all, in some ways, the most adaptable to the requirements of the health educator.

Despite the countless cans of trivia that television studios continue to turn out, the time is long past for arguing the potentialities of television in education. That television can be an effective educational tool has been demonstrated many times over by educational television stations in the United States and by educational programs all over the world. A discussion of the physiological and psychological aspects of TV has its place in our later discussion on the use of the medium. Let us only say here that television at its best is people and facts and ideas reaching intimately into over a million Canadian homes. Statistically, into an unbelievable total of 1,899,710 Canadian homes; at this moment potentially reaching over 75% of Canada's population.

At the same time, the television studio has a captive audience to an extent only surpassed by the theatre and the concert hall. This is of course less true in many eastern centres where a few twists of the dial will quickly find the most entertaining or interesting program on the air. But at the same time, of the three main media available to us the television set is the one most likely to capture an off-beat audience: the section of the public which knows least and is least interested in health topics. This, in many ways, is the public we most need to reach. The vast majority of the public listens only to radio talks dealing with their pet interests and the newspaper headline is tailor-made to help Joe Public select only those topics which he feels particularly interest him.

Through the media of television we can channel this audience's interests in a new direction—into the vast field of health. Imaginative and interesting programming can therefore serve the double purpose of reaching a new public and of making health topics more lucid for all.

This is one-half the story: that TV *can* be one of the health workers' most effective tools in putting across a fact or an idea to the public. The other half contains a challenge and a warning.

The challenge is this: Just as television is more complex than either radio or the newspaper in that it communicates to us both through our eyes and our ears, so too is it by far the most complex of the three media from the point of view of production, involving a large and motley assortment of producers, directors, sound men, camera men, engineers and technicians to produce any single telecast. It is within the power of the health worker to make effective use of the medium to the extent that he understands the mechanics, the limitations and the possibilities of television.

But inherent in this challenge lies the warning. While television presents an opportunity for health education that we, as health workers, cannot afford to neglect, to enter into television at all requires some understanding of the medium and a certain amount of work; to enter television on a larger scale requires much planning and co-ordinated effort, as well as a considerable understanding of the physical set-up and policies of the television station.

There are probably far fewer limitations to what a health department may accomplish in the field of TV than the majority of our health departments would currently suspect. Moreover, success in such a venture is an extreme likelihood if it is approached on the right footing. The program committee in organizing this conference expressed a very strong feeling that the time was ripe for awakening and utilizing the health worker's interest in TV. Our own research into what has been accomplished in the field has more than justified their optimism over the potentialities of the medium. However, before proceeding any further to discuss what it is possible for us to achieve through television, it is necessary to modify our own enthusiasm by taking a short peek at the factors involved from the station manager's point of view.

Television is, of course, still an infant in Canada. We might safely say that in almost all areas the station managers are encountering the problems of limited personnel, insufficient equipment, and as yet a relatively unsettled program policy—due to these factors and many more.

Because of inadequate production facilities and staff, to date only a small percentage of our television programs are produced in Canada, and plans for further productions are moving ahead very slowly. From our own point of view, this means that for the next little while any elaborate plans that we might present may be viewed with considerable skepticism, and the reaction of the studio staff might be a major deterrent to health workers momentarily keen on "breaking into television." Taking these factors into consideration, what can and should be said is this: If you believe in health education, then you owe it to yourselves to investigate the field of television and to make long-range plans for utilizing the medium to the extent that your time and facilities will permit. Do not be discouraged. Remember that television is young, but

growing and if you start making your plans now—and utilizing the medium on a small scale—you can be ready for television when television is ready for you.

All television stations are committed, by policy, to allowing a certain amount of time for public service broadcasts. The majority of stations are dedicating even more time than is required under the terms of their license to public service work and are beset by innumerable requests by public organizations for still more time allotments. For this reason we advise, as we will many times over in the course of this paper, that when you go to the production manager, your requests will only receive serious consideration (a) if you have concrete suggestions to offer, (b) if you can show him you have some understanding of the medium and the principles and problems involved, and perhaps (c) if you can convince him of the need for putting across your ideas to the public. We say perhaps the latter, because it is the production manager's job both to keep a finger on the pulse of the public—to know what sort of programs and what subject matter most appeals to it, and as well to keep his eye on the activities of his community and the world at large. Nevertheless, it will not hurt to come armed with a sales talk, just so long as you recognize and acknowledge that the production manager does know his business—and a bit about yours. But once again we fall back on the reassurance that a good idea and a solidly worked out idea will sell.

This is all very fine, you say, but we can't afford to go into television. This would be perfectly true if your health department had to pay for the time allotted it on the same basis as commercial sponsors. However, there are many ways of getting around this obstacle.

There are five main ways of obtaining time on TV.

1. *BY BUYING IT.* The cost of buying time on television is indeed prohibitive, ranging from $72 to $270 for a 15 minute broadcast, and $108 to $315 for 30 minutes.

2. *BY HAVING IT SPONSORED* by a commercial organization. Such a measure is, perhaps, expedient only for a non-government organization, but it is worthy of serious consideration by public service groups who are interested in entering the medium.

3. *BY PARTICIPATING IN ESTABLISHED PROGRAMS*

Representatives of your department will find opportunity to participate from time to time in television interviews or forums. Television producers are constantly on the look-out for newsworthy persons or activities for their regular interview program. They will be most happy to co-operate with you if you contact them about new health programs or new developments that are influencing local health activities. Additionally, they will be interested in background information on many of your current health activities. And if a big convention is in the offing, the station might be contacted well in advance as to possible distinguished guests from out of town.

If your local station has a regular forum broadcast, have a talk with its producer. You will likely find him very grateful for any suggestions you can make as to interesting and authoritative persons in your department whom he could fall back on as resource persons in forum discussions.

One other type of established program to which a health department might

well contribute is the documentary film series. In fact, the production managers contacted by us have expressed almost unanimous willingness to utilize their local health department's film library. Submit your film catalogue to the producer, with the suggestion that he might be interested in drawing on your film library for some of his film nights.[1]

4. *BY SUBMITTING FILM SHORTS OR SPOT ANNOUNCEMENTS* to be used as fillers.

Very often, regular programs are somewhat shorter than scheduled. After a kinescope, or film has been edited it might be anywhere from 20 seconds to two or three minutes shorter than the time allotted it. To fill in the rest of the time, a prepared public service announcement on slides or film or an incidental film may be used. You have probably seen the *Safety Pays* series prepared by the National Film Service for this very purpose. Your own department could very well secure or make a series of films or slides to be used at the convenience of the station.

5. *PUBLIC SERVICE TIME*—i.e. time donated by the television station.

As we suggested above, public service time will be the most difficult to obtain because of the station's many commitments. In order to assess just how willing Canadian stations would be to donate time to health departments, we asked the following question of the 28 stations currently in operation:

Would you be willing to co-operate with your local or provincial health department in donating free time for programs concerned with health education?

A total of 14 replies[2] were received. Of this number, 5 were willing to consider donating either 15 or 30 minutes on a weekly basis, 2 would donate this time occasionally, 2 said that they could make no commitment at present, but believed that such time could be made available at a future date, and 4 said no. Three of the stations reported that our departments or agencies could have better access to time if their programs were commercially sponsored.

Mr. John Dunlop, CBC's Supervisor of Institutional Programs, outlining general CBC policy in this regard, reported: "We are quite anxious to broadcast health information as we are now doing, without charge, on both local CBC stations and the network, provided the ideas submitted are of acceptable quality". He added, however, that television was a "scarce commodity" and that as, in his opinion, a live production was a "costly proposition" we should not be too ambitious in our immediate plans.

However, you may find that private stations are more likely to make time available than the CBC—partly because they have far fewer national commitments, and because their interests are centred on local activities to a considerably greater extent. Nevertheless, the CBC does have programs originating at each of its studios, and they have expressed a willingness to assist us, so let's not think of the corporation as being too formidable. It isn't really.

[1]Before films can be used on TV, television rights will have to be obtained from the distributor. Some of your films were probably not cleared for television use at the time they were made, and if the actors in the film have not allowed their original contract to be extended to include television rights a small royalty will have to be paid before the film can be shown over television.

[2]Only two of the eight CBC stations answered individually.

So here is the situation at this moment and the challenge to all of us. Nine of Canada's television stations have expressed a willingness to work with our health departments either now or in the near future on full-scale programs. At present only one of our ten provincial health departments have made plans to utilize these facilities. Only four of the ten have reported making any use of the medium at all.

Obviously we have a long way to go yet if we are going to make our dint in the TV field.

Having seen that the cost of obtaining time need not hold us back from entering television, let's take a closer look at the various ways in which we can utilize the medium. We can list the different types of telecasts as follows:

1. Spot announcements
2. Interviews (on established programs)
3. Commentaries
4. Drama

This is a very rough classification, because your program could be a combination of any number of the above. You will find an outline of a possible format in Appendix I of this report. At the moment, we want to see what main factors are involved in each of the above types of productions.

First of all, *SPOT ANNOUNCEMENTS*. If you want to experiment with the medium before making more elaborate plans, this is an ideal place to start. Spots can be prepared simply and at little cost—and can be very effective in all types of promotion work. A good spot announcement will catch more attention than the largest signboard on the highway. In fact, advertisers have found that a television commercial can be the most effective means of selling their product to the public. One of the big advantages from our point of view is that the spot announcement lends itself to repetitive use—and in many ways there is nothing like repetition to penetrate into the consciousness of the public. A "safety pays" or an "x-ray may save your life" or "your health unit is serving you" reminder repeated daily or periodically can perform just slightly less than a miracle in changing the habits of the public.

There are basically two ways of putting together a spot announcement—on film or as a series of slides. The film will cost substantially more than the slides, but if your budget will allow it, it is worth serious consideration. The film can be made with or without sound. If without, a station announcer will read the accompanying script. However, the script can be much more flexible and the entire announcement will likely be more polished if the film is made with a sound track.

The filmed spot, itself, breaks down into two different types: the animated, or cartoon, type and the filmed-from-life type. While the animated can be the most effective spot announcement of all (watch for it next time you are near a television set), it takes a great deal of time to prepare. With 24 separate drawings required for every second of film time, a one-minute spot would be made up of a total of 1,440 different pictures. While there are shortcuts—and a visit to one of your big advertising agencies would uncover these—your artist would require at least a full two weeks to put one spot announcement together.

The ordinary filmed spot, which, as the animated, should run from 30 seconds to one minute, requires careful planning to be effective, but in the long run is considerably less work. This method is ideal for illustrating very life-like situations—the typical toddler reaching for a pot handle on the stove, the child running in front of a car to the inevitable screeching of brakes, an over-active middle ager in the opening throes of a heart-attack. Such situations as these are sure-fire attention catchers and lessons teachers. Too, an imaginatively edited peek-in your health department activities can do much to sell anything from your home-nursing classes to sanitary restaurants.

Our own department has worked exclusively with slides. The local TV program director advised that this type of spot announcement should be 20 seconds in length—approximately 60 words, with three accompanying slides. The approach decided on was to show a "what not to do" slide, followed by a "what to do" slide, and then a standard tag line.

The second type of telecast is the *INTERVIEW*. As we mentioned earlier, the established interview program provides an ideal opportunity to present newsworthy happenings to the public—and to clarify them. Interviews can be very interesting. Unfortunately, they can be very dull as well. And our major suggestion with regard to the interview is this: If you want to get your idea across to the public, be careful about the person you choose to present it. On television, even more than on radio, as far as the audience is concerned the most important part of this type of program is the personality of the guest. If they are to learn from him, he must interest them as a person and be able to speak about his subject in a conversational way.

For those planning a TV interview this might easily mean abandoning protocol. If the man heading a certain activity is dogmatic or too wrapped up in his particular activity it's a good idea to take a look at his right hand man. It might be that he is the ideal person to "sell your product."

We mentioned the interviewee first because it is he who can make or break the program. But a second major consideration for the interview is the use of props. In props, we have one of the major advantages of TV for putting over an idea to the public. Try explaining how the Salk vaccine acts as a deterrent to polio and you become involved in a long explanation that not one lay person in ten can comprehend clearly. Set up a blackboard, and with a piece of chalk you can quickly suggest how the vaccine produces antibodies in the body to combat the polio virus. Similarly, try to explain why the vaccine shots should be spaced at intervals of two to four weeks and then seven months—your result in most cases will be confusion. Set up charts showing the various levels of antibodies in the blood after each of these shots, and you can easily show the layman the significance of the vaccine's field trials. Those of you who saw the kinescopes of the results of the field trials will agree that both Dr. Francis and Dr. Salk made full and imaginative use of props to put over their findings.

There is, in fact, almost no limit to what can be explained through the use of properties—and believe it or not the public loves to learn when learning is made fun.

3. *REGULAR COMMENTARY*. Now for the first time, we are going to

consider a possible television series. By commentary, we mean a program in which one person acts as a sort of guide for each of the broadcasts—as in the famed Ding Dong School emanating out of Chicago. In Winnipeg, we have a TV series called "Take a Look", where the commentator is the curator of the provincial museum. He will soon be entering his second year of broadcasting, each week coming to the studio armed with a stuffed animal, an Indian bow and arrow, or a skeleton—and taking the kiddies on fascinating trips into the past, and into animal life.

Of course, before embarking on such a series, it is necessary for you to decide on the message you want to put across. For example, you may want to show the various facilities available for the sick—hospitals, rehabilitation centres, mental homes, and so on. Or you may want to show just where we stand today in the world of medicine—how certain diseases are being brought under control and how others are being treated. Such a show can be quite simply handled—with the commentator bearing the main weight of the production. He could interview various health workers and possibly patients or ex-patients in the studio, or could rely almost exclusively on props, as does our "Take a Look" man. In a more complex production, filmed sequences could be interspersed with the commentary.

Regardless of how simple your show is to be, you will have to have some of your plans formulated when you first approach the studio. You should first of all map our your proposed series, at least in a general way, by making a list of themes for each program in the series and a tentative outline of the facilities to be used in each. You should decide on a format for your program, outlining how your show is to be put together. You should also, as much as possible, have your entire first show scripted out. Most important, you will want to line up a commentator.[3] In choosing a regular commentator you would be wise to keep in mind a principle we suggested in talking about the interviewee. You want an interesting person, because once again—and doubly so this time—it is he who is going to hold the show together.

You have perhaps heard of Baltimore's "Family Doctor", where the commentator, in the guise of a practicing physician, has led an audience of millions encharmed through a labyrinth of hospital wards and through the myriad mysteries of medicine and the human body. A seemingly, but not-so, typical person, with self-assurance, warmth and the ability to speak to his audience is as good a formula as any for making this type of show a success.

This type of television series is no small undertaking. But if you investigate the medium, and take some time out to watch what is being done on your local TV screen, you will realize that planning and putting together such a program is not as great a task as it may at first seem. Remember that professional polish need not be your goal. But the ability to interest and inform your audience is. This is an obligation that, once given TV time, you owe both your department and the studio that is giving you time on its airwaves. No production manager

[3]The program producer will have the final say in the choice of commentator for your program. Nevertheless, as this function is so important to your show, if you can bring forth a person with the suggested qualifications the producer will likely be most pleased to accept your choice.

is going to be so generous as to want to give you valuable airwave time, when it will mean a drop in audience not only for the duration of your program but possibly for the following programs as well.

Our final main classification of broadcast types is *DRAMA*. Now actually, so far as we have been able to learn, no health department on this continent has attempted an exclusively dramatic production. Usually the drama occurs in short sequences, interspersed by commentary—or else it is entirely pantomimed as a background to a commentary. However, once you begin to consider bringing a group of people and large props, or sets, into the studio, you come up against a great many technical problems. You will have to learn to adjust to the studio's very limited space, to plan your action to allow for the movement of the cameras and the activity of multifold station personnel. You will want to know how to utilize such camera tricks as fade-ins or "supers" and make full (though not unlimited) use of TV gimmicks.[4]

Such a show, it is true, is the greatest challenge that television has to offer. Yet with initiative, imagination, and the willingness to do a certain amount of work, there is no reason why you cannot start now to plan a TV drama. Once again, we suggest that your show does not need professional polish as much as honesty—the ability to create a "you are there" feeling—and a clever format that will interest your audience. None of these things are beyond the powers of your health department.

Unfortunately, there are many obstacles in the way of putting such a production on the air. As we have already mentioned, most television stations have not yet staff or facilities to handle an outside production. And the never-to-be-overlooked cost of this sort of production *may* be very high—estimates reaching us having placed them at anywhere from $25 to $300.[5] However, when the time is ripe for you to produce such a show in your locality, you may find that the bulk of the costs can be circumvented. Our main encouragement here comes from the Arizona State Department of Health, which claims to have produced a 30-minute drama-documentary for less than two dollars.

Well, that's television. No, not really. As we've been saying, you can't know too much about the medium, so if you plan to get into the field—and what's to stop you?—now is the time to start reading up on it. And take a look around your television station—visit the master control room with its six TV monitors, the film room, the television studios, and you'll get a better idea of what you're up against.

Perhaps the big thing that has been holding your department back from entering the medium is the question of who is going to handle it. Well, there is no question but that any concentrated TV program is going to require a great deal of work. However, if you are convinced of the value of educating the public in health matters, no other medium of communication can harvest such great rewards. As one writer put it: "If 100 persons show up for a civic meeting, it is considered a success; if 2,000 attend a lecture, that is a huge number; if 10,000 attend a university, that is a big university. But . . . television

[4]See Appendix II.
[5]See Appendix III.

can conservatively 'deliver' (up to 100,000) persons to the meeting, the lecture hall, the campus."

If you do not have a health educator who could devote a good portion of his time to planning, organizing, and perhaps scripting a television program, why not consider the possibility of organizing a TV council? Such councils have worked admirably in health departments in the U.S. With one person in the key post of promoter and organizer, gather together representatives of such local agencies as your Crippled Children's society, your Sanatorium board and Cancer Institute. In a very few sessions, you should be able to plan the format and content of a possible TV series, and be able to spread the chores relatively thinly over the various groups. Your television station will doubtlessly be more than willing to furnish a consultant to sit in on certain of these councils, both in the early and late planning stages. Such a council would have the additional advantage of representing the major health activities in your community and of being able to evaluate just what methods of approach and what subject matter would be most effective.

What, then, is television? Right now in Canada it's a monstrous infant—sprawling, unwieldy, and growing very fast; a decentralized, disorganized reproduction of the glamor and glitter that is Hollywood; a seemingly endless series of variety show slapstick, hollow melodrama and gun-toting cowboys; a man-from-Mars looking creature, with bunny ears for its head, that crouches sullenly in the living room through 16 hours of the day and then for the remaining eight springs to life to hypnotize the entire family and put an end to all household activity. But more than this, and most important, television is an opportunity for a million and a half Canadian families to visit places they have never been, see things they would never otherwise see, and learn about things they had never dreamed would interest them. It is a potential car, train, ship and plane to bring the world into each viewer's home. Are we to leave our little area of activity out of the picture and neglect this opportunity to teach the facts of health to our communities?

Mr. Lynn Poole, Director of Public Relations at Johns Hopkins University and a veteran of educational TV, has put the challenge to educators this way: "They missed the boat with radio, and now they're going to sit around sneering at television instead of using it." We owe it to ourselves not to sneer.

## APPENDIX I

Format for Baltimore City Health Department television series, "Your Family Doctor", reprinted from Public Health Reports, August 1953.

*Opening scene* (30 seconds) A live or filmed dramatic sequence to catch audience attention.

*Standard titles* (30 seconds) Superimposed over opening scene whenever appropriate.

*Body of program* (10 to 12 minutes) This may take any form: a health drama, a series of experiments, an illustrated lecture, a film, or any combination of these.

*Guest specialist* (usually 2 to 5 minutes, but time varies according to subject). Outstanding personalities are frequently invited to appear on "Your Family Doctor" in order to highlight the program and lend added authenticity.

*Ending* Each program ends with "Learn to do your part in the prevention of disease."

## APPENDIX II

The word "gimmick" has become almost a standard term in the television world. It is all-embracive, referring to both an object, i.e. a prop, or a method. Its aim can be either effect or clarification—or both. The gimmick is very often used as a short-cut in some aspect of production—as in the case of the following, used by the Arizona State Board of Health in their series on Child Safety:

During a dramatic sequence, where the mother was bathing her baby, the phone suddenly rang. The mother looked up, in confused expectation, straight into the camera lens—or, in effect, straight into the eyes of her audience. "Well, what are you going to do now?" questioned the commentator, off camera. The mother's face, still looking straight into the camera, registered worry—and then relief, as she listened to the commentator tell her how to dispose of baby before answering the phone.

What was the effect of this simple device? Without any particular acting ability, the actress in question was able to reproduce a typical home situation that had the ring of truth so necessary to reach the heart of an audience.

## APPENDIX III

While such items as the services of a professional script-writer or artist have entered the budgets of some health departments, the cost of a major television production divides itself into three main categories (exclusive of the cost of renting time, which is not included in our estimate of production costs):

1. Payment of production staff
2. Payment of actors
3. Cost of sets, props, etc.

*Payment of production staff*: This, according to W. G. Carpenter, CBWT television director, would constitute the major item of expense to an outside agency attempting to produce a TV drama. Mr. Carpenter stated that although television personnel are employed on a regular salary basis, the salary costs are divided up and charged against each production originating at the studio. As long as the time of each staff member is being fully utilized—as at present—there appears to be no way of the CBC producing a public service drama without chalking up production charges against the agency concerned.

This policy may very likely not apply to private stations. It is quite possible that many stations will be willing to donate the services of their staff as well as telecast time.

However, at all times your production should be planned and organized with an eye to keeping the time spent at the studio at an absolute minimum.

*Payment of Actors*: This, too, can be a major expense if professional actors are used. At the present time, however, amateur actors can be used on private stations providing there are no professionals in the cast. This is a ruling of the Association of Canadian Radio and Televison Actors—a union which has a great deal of control in both media. Unfortunately, at the present time, this union is reportedly agitating for a ruling to prevent amateurs from participating in radio or television drama. Should this ruling come into effect, the cost of a dramatic production will mount considerably.

One rule which has proved sound from every aspect is to keep your cast—whether amateur or professional—down to a minimum.

*Cost of Sets*: While sets for commercial shows are usually costly items, it is not at all necessary to go to great expense for your show. The CBC, and in fact most private stations, have their own staging department which makes the sets for the television programs. In most instances for programs you would arrange, the sets should be quite simple, with the addition of professional or technical equipment which your members would be in a position to loan to the TV station.

## BIBLIOGRAPHY

An Early Christmas in the Sixth Grade. *The Johns Hopkins Magazine*, December 1953.

Barrett, Morris: Public Health Reports, 1954, 69: 608.

*Canadian Television and Motion Picture*. Published monthly by Reg. Willson Publications, 2533 Gerrard St. East, Toronto 13.

Education by Television. *The Johns Hopkins Magazine*, March 1952.

Gordon, Joseph: Public Health Reports, 1953, 68: 816.

Hall, Roger S.: *Taking Hold of Television*. New York, National Publicity Council for Health and Welfare Services, 257 Fourth Avenue, 1954.

Hoddapp, William: *The Television Manual.* New York, Farrar, Strauss & Young, 1953.
Keesey, Truman J.: Public Health Reports, 1954, 69: 599.
Mabley, Jack: *What Educational TV Offers You.* New York, Public Affairs Pamphlets, 22 East 38th Street, 1954.
Miracle Medium. *Food For Thought,* February 1951.
*Nelson, John H.: *An Evaluation and Discussion of the Planning, Writing and Production of an Educational Television Program.* Arizona State Department of Health, 1955.
Pinckney, Charles E.: Public Health Reports, 1954, 69: 606.
*Television for You.* Washington, United States Department of Agriculture, U.S. Government Printing Office, 1953.
*TV: Learning to Use It* (A resource and Guide for Workshops). New York, Council of National Organizations of the Adult Education Association of the U.S.A., Room 205, The Cooper Union, Fourth Avenue at 7th Street, 1954.
*This is Educational Television.* Washington, National Citizens Committee for Educational Television, Ring Building.
Yoder, R. M.: TV's Shoestring Surprise. *Saturday Evening Post,* August 21, 1954.
Yorke, M.: Television Today and Tomorrow. *Food For Thought,* November 1953, December 1953.

ACKNOWLEDGMENTS

I would like to express my gratitude and sincere thanks to all provincial and state health departments who so generously contributed material and suggestions on their use of television. My thanks also to Mr. Lynn Poole, Director of Public Relations, The Johns Hopkins University, Dr. Fred G. Pegg, Director, Forsyth County Health Department, Mr. John Dunlop, Supervisor of Institutional Programs, Canadian Broadcasting Corporation, Mr. W. G. Carpenter, Director of Television, CBWT, and Miss Peggy MacFarlane, CBC commentator, for their considerable assistance.

*This is a preliminary draft of a proposed publication. A copy of this very helpful report may be borrowed from the Bureau of Health and Welfare Education, 320 Sherbrook St., Winnipeg 2.

**THE CANADIAN PUBLIC HEALTH ASSOCIATION**

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# FORTY-FOURTH ANNUAL MEETING

***in the***

**ADMIRAL BEATTY HOTEL, SAINT JOHN, NEW BRUNSWICK**

***on***

**MAY 29, 30 and 31, 1956**

***in conjunction with the***

**NEW BRUNSWICK - PRINCE EDWARD ISLAND BRANCH**

# Integration of Occupational Health Services into Public Health

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THERE is always a tendency to regard any study or practice which cannot be pigeonholed or classified as an exotic and remote specialty. For this reason it is as well to emphasize that occupational health should never be regarded as something apart or special. It is essentially a very vital cog in the total machinery of preventive medicine endeavour, an integral part of the whole picture of public health.

Looked at in this light, it is quite evident that occupational health must, then, be of concern to every local health authority and Medical Officer of Health. As the educationist claims to be interested in teaching the "whole child", so the Medical Officer of Health, by the very nature of his position, requires to know and supervise, the health of the "whole lives" of the people of his district. And organized occupational health services provide the ideal medium for the continuation into adult life of the program of preventing illness started in the well-baby clinics and schools.

### *The Changing Targets of Public Health*

Perhaps it is treading on controversial ground but it does appear that in the days gone by the objectives and aims of public health were much more clearly defined than they are today. "Public health then was more like a crusade", Dr. Sowder states in a paper published recently, in which he points out diseases such as typhoid fever acted as most dramatic arguments for the need for effective public health measures.

Today many of the old traditional enemies such as malnutrition, high infant and maternal mortality rates, the scourges of diphtheria, smallpox, impure water supplies, inadequate sewage disposal—all are virtually conquered (or, at least, the methods of victory are known). The public health worker is left with a less heroic, but equally onerous duty, the prosaic task of "holding the line". In addition there are these problems of public health, which are so hard to crystallize and clarify their value to the public, but which are just as important as the conquest of the ancient foes.

In the quest for a new clear-cut target, it is wrong that the claims of occupational health should be overlooked. Recent evidence from the United Kingdom and America suggests that this is becoming recognized and there is

a growing awareness of the need for a much closer integration of this field into the sphere of traditional public health work. A recent publication of the Society of Medical Officers of Health from Britain points out the fact that under existing statutes only very limited powers of preventing illness in places of work are given to the Medical Officer of Health and that much more is required for the protection of the community health, particularly in areas with a high degree of industrialization. In the U.S.A. state departments are becoming very conscious of the need to have efficient divisions of industrial hygiene within the department organization. The State Commissioner of Health for New Jersey expressed a general feeling recently when he said "It would seem to me, as a public health administrator, that my hopes and plans for adult and occupational health should be based upon co-ordinating public health practices".

*The Role of the Local Health Authority in Occupational Health Practice*

In considering the ways in which the various members of the local public health team can play their part in promoting sound health practices in the industries and occupations in their districts, only a few ideas can be broached here. The potentialities are, of course, almost boundless, but there should be no necessity to sell occupational health to those who are already devoting their time to the prevention of illness.

Briefly it may be as well to consider some of the ways in which the individual members can contribute their share. The Medical Officer of Health will, of course, have an overall picture of his whole district. It is not envisaged that he would in any way infringe upon the duties or sphere of activity of those physicians who are already giving service as industrial medical officers. It might be suggested though that a much closer liaison might be developed whereby the Medical Officer of Health can ascertain from the industrial physicians something of the incidence of communicable diseases etc. which are occurring in the plants under their care. As has been pointed out, the great bulk of sickness in employed persons is from the ordinary diseases prevalent in the community, and not specific to industry itself.

When a town or village is considering expansion then is the time for the "City Fathers" to consult their Medical Officer of Health. He can advise on the suitability of their plans for industrialization, the adequacy of their health facilities and so on. Further it would be a big step if all plans for industrial buildings should first have to have the consideration of the Medical Officer of Health. It is felt that, in the small industries particularly, the Medical Officer of Health can give invaluable assistance in advising employers both in their environmental plans and in many of their personnel problems. A close comparison here is the role of the Medical Officer of Health at work with the restaurant proprietor. A good example of the part which a Medical Officer of Health can play can be seen in the way in which the Medical Officer of Health of Kitchener, Ontario, assisted in fathering the outline of the present pilot study for small plant health services. This project has been made possible by National Health Grants and through the keen interest and supervision of the Ontario Industrial Hygiene Division.

Now a few brief thoughts might be given to the ways in which the public health nurse can participate in this work in her community. It is envisaged that perhaps the most effective help can be given by the nurse through home visiting. Already there is in many areas a considerable amount of close liaison between the nurses in industrial plants and their "opposite numbers" from the local health department. Where this occurs there is immense benefit not only to the community but to the physicians, and the workers in the various plants. By this liaison, the occupational health nurse can obtain assistance for an employee worried about the health of his family. In the reverse direction, the public health nurse can get her "message" through to that member of the family who is normally absent from home when she calls.

Although it is a slight digression, the fact should be mentioned that all people are not the same. This appears a very blatant truism but is often forgotten in this day and age. The individuality of people, the fact that they do not, and should not be expected to think the same way must never be forgotten. This fallacy of the herd aspect is often overlooked particularly by busy workers who are trying to deal with the problems of many people.

Finally turning to the sanitary inspector, it seems clear that the supervision of workshops, stores, factories, is a very logical addition to his duties. Much of the work would be essentially the same, in the maintenance of a cleanly and healthful environment. He is eminently the person who could take full advantage of further short courses in accident prevention, protection of machinery, basic knowledge of the toxic substances and so on. With this addition to his armament he could play a most valuable part in community occupational health activities. It is perhaps of interest to note here that certain branches of the Armed Services are thinking on these lines and in the early part of this year a course was run by the Occupational Health Division in Ottawa, for hygiene assistants from the Regular Forces.

It will be seen from these few brief thoughts that no attempt has been made to explore the total range of the contribution which is possible by staff members of the local health authorities. It is fairly apparent that this contribution is most needed in the smaller communities where the small plants are found. The tendency in the larger plants is now to have their own occupational health services under the direction of an industrial physician. Obviously the assistance of the local health authorities is not here so necessary though close co-operation is clearly of greatest benefit to all concerned. But it is in the small plant where health services are largely non-existant or very rudimentary that help is needed and it is from this beginning that the whole field of occupational health will grow.

*The Dividends from Occupational Health Services*

Although to the public health worker the advantages of occupational health services seem obvious, it is well from time to time to summarize the advantages of a sound health service. To the professional public health worker the biggest gain is in a job well done, reflected in a more healthy community as a whole.

It is a little more difficult to point out the advantages of an effective health service to the employer who has to foot the bill to an extent. In a brief concise

way a recent memorandum from the Division of Industrial Hygiene of Quebec cannot be bettered. It summarizes the advantages as follows:

"It helps to improve worker efficiency and productivity
It helps to raise morale among employees giving evidence that management has a sincere interest in its employees and their welfare
It helps to reduce accident and insurance costs
It helps to reduce absenteeism (surveys have shown as much as 29%)
It helps to reduce labor turnover (surveys have shown as much as 27%)
It helps to reduce occupational diseases (surveys have shown as much as 63%)
It improves the quality of the working force by attracting a higher calibre of personnel
It adds another important channel of communication with employees through the benefit of the trained observation powers of professional men and women of high integrity
It raises the standard of the organization in the eye of public opinion"

## Conclusion

No attempt has been made to cover the vast scope which can be achieved by a closer knitting of occupational health into the community health program. These have been a few suggestions upon which it is hoped many will be able to build their own ideas.

It does seem that occupational health as well as the control and prevention of occupational diseases will not truly come into its own until it is accepted by all as a part of the normal program of public health activities. Specialists and consultants are, of course, essential at the various levels of administrative authority, but the field work, the sympathetic teaching, and the helping hand on the spot, should come from those who are already doing this. A sentence taken from the report of a committee of the American Public Health Association summarizes the position when it states "The Committee feels that there is an untapped reservoir of opportunities in occupational health at the local health department level. Not only the development of pure industrial health activities by local health departments, but the use of occupational groups as a medium for the appreciation of traditional health department functions needs to be exploited".

## REFERENCES

1. Bedford, T.: Brit. J. Indust. Med., 1954, *Vol. II*: 50.
2. Bergsma, D.: Potentials of an Occupational Health Program in a State Department of Health. Address given on April 26, 1955 before the Industrial Health Conference, Buffalo, N.Y.
3. Sowder, Wilson T.: Am. J. Pub. Health, 1955, *45*: 98.
4. The Functions of the Medical Officer of Health: Society of Medical Officers of Health Booklet. The Tay Press, 1955.
5. Brown, A.: Brit. Med. J., 1955 Supp., II, *15*.
6. Society of Medical Officers of Health, Occupational Health Committee, 1955, *LXVIII*: 143.
7. Ministry of Health, Quebec, Division of Industrial Hygiene.: Memorandum, How Does an Effective Health Service Program Pay.

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## PREVENTION OF RABIES

THE increasing occurrence of rabies in Canada is focusing attention on its control. For several decades reports of confirmed cases in animals were very few and the occasions for the administration of rabies vaccine to man were relatively few in number. Ten years ago cases were first reported among dogs at Baker Lake, a remote settlement in the North West Territories. Strains of the virus from this outbreak were studied. and it was shown that rabies vaccine used in preventing the disease in man was effective against these strains. A few years later the disease occurred in northern Alberta in foxes, cattle and dogs. Subsequently the disease was found in southern Alberta and in Manitoba.

In Canada, the Federal Department of Agriculture is responsible for the control of communicable diseases in animals. The Department is to be highly commended for the effective control of this outbreak by quarantining large areas and by the compulsory vaccination of all dogs. The Department supplied, without charge, a one-dose preventive treatment for animals and administered the vaccine in unorganized territories. Continued efforts to ensure that all dogs are vaccinated has resulted in the control of the disease with re-vaccination after a period of two years. During the past year, rabies has been reported in northern Ontario among wild animals and dogs and recently cases have been reported in two counties, north and east of Toronto, indicating that the disease may have spread southward.

In the United States, rabies is a serious problem in a number of southern as well as northern states. It has been shown that foxes, skunks and certain other wild animals are reservoirs of infection. Compulsory vaccination of dogs is recognized as the effective measure of control. In view of the widespread distribution of rabies in the United States there is always the possibility that the disease may be introduced unexpectedly into communities by dogs that have been exposed to infection and have been brought into Canada by motorists. There is also the possibility that the disease may spread through wild animals coming into Canada from infected areas in the United States.

Vaccination of dogs and animals is conducted using a one-dose treatment consisting of an attenuated living virus which has lost almost all its ability to

produce infection as the result of many passages in the developing chick embryo in incubated hens' eggs. The strain commonly employed is the Flury strain. Revaccination of dogs and animals is recommended at intervals of two or three years. Medical Officers of Health can contribute much to the control of rabies by urging citizens to co-operate with the Department of Agriculture by arranging with their veterinarian for the vaccination of their dogs.

In man, vaccination is conducted using a modification of the Pasteur Preventive treatment. The one-dose preventive vaccination (Flury Vaccine) as used in animals has not yet been approved for use in man by health authorities on this continent. The modified Pasteur Preventive treatment consists of the daily injection of two cc. of vaccine for fourteen days unless the biting is very severe when seven additional doses are given during the first week of the treatment. Immunity does not fully develop until two or three weeks after the last injection of this series, but, fortunately, the incubation period of rabies is sufficiently long to permit the vaccination to be effective.

The decision to administer rabies vaccine in man must be made in the light of all available information concerning the biting, its extent and character, and the history of the dog. Every effort should be made to keep the dog under observation rather than to destroy it. The administration of the series of injections of vaccine should not be lightly undertaken as the occurrence of encephalitis following vaccination has been reported in many countries. In Canada occurrence of any untoward symptoms has been extremely rare but the possibility of encephalitis must always be remembered.

The use of antirabic serum has been suggested but information concerning its use is very limited. The serum is prepared by immunizing horses, rabbits or other animals. It has been employed to supplement vaccine treatment in patients who have suffered a very severe biting, particularly if the biting has involved the face and it has also been used in persons whose treatment with vaccine has been unduly delayed. It is administered in a dose of 20 cc. and the dose may be repeated depending on the need. The occurrence of marked serum reactions is to be expected following its use.

Canada has been fortunate over the years in its experience with rabies. Pasteur Preventive treatment has been given in Canada for more than 40 years. Prior to 1911 patients in Canada had to go to New York to receive the vaccine. In 1910 the vaccine was forwarded daily to Toronto and the treatment administered to patients. In 1913 Dr. J. G. Fitzgerald prepared the vaccine in the laboratories of the Provincial Board of Health. A few months later the work was transferred to the Antitoxin Laboratory in the University of Toronto, now the Connaught Medical Research Laboratories, which had been established by Dr. Fitzgerald.

# NEWS

## Alberta

LOCAL HEALTH DEPARTMENTS are preparing for the forthcoming poliomyelitis vaccination program. It is expected that 65,000 children who received two doses of the Salk vaccine last year will receive an additional dose this spring. Approximately 130,000 persons will receive two doses for the first time.

MISS FRANCES FERGUSON, formerly the Registrar Consultant of the School for Nursing Aides in Alberta, has accepted a position in Ceylon, Colombo, as Vice-Principal of a School for Practical Nurses which has recently been established there.

MISS WINNIFRED NORQUAY, formerly Nursing Consultant for the Alberta Tuberculosis Association, has accepted a position as Regional Supervisor of Field Nurses with the Charles Camsell Indian Hospital in Edmonton. Miss Edna Carveth has recently returned to Alberta after serving for 2½ years with the Ontario Crippled Children's Society. She will succeed Miss Norquay in the position of Nursing Consultant for the Alberta Tuberculosis Association.

## Saskatchewan

DOCTOR IAN CLANCEY has been elected President and Dr. John Clancy, Secretary of the Saskatchewan Psychiatric Association.

## Ontario

FLUORIDATION OF WATER supplies of Hamilton, Ontario, population 208,321, was given final approval at a meeting of the city council held on Tuesday, January 24, as strongly recommended by the Board of Health and Dr. L. A. Clarke, Medical Officer of Health.

THE FOLLOWING CANDIDATES are enrolled in postgraduate courses in public health in the School of Hygiene, University of Toronto: *Diploma in Public Health*: R. A. Christie, Manitoba; W. H. Cross, Ontario; J. W. Davies, Newfoundland; W. A. B. De Silva, Ceylon; L. H. Douglas, Ontario; J. P. Harvey, Ontario; T. N. Hurley, Manitoba; W. Homonylo, Ontario; Pin-Ya Hu, Formosa; H. V. Johnsen, Manitoba; C. J. G. MacKenzie, British Columbia; C. H. Munasinghe, Ceylon; T. Sanmuganathan, Ceylon; C. C. Stewart, Ontario; E. E. Tieman, Ontario and M P. D. Waldron, Eire. *Diploma in Hospital Administration*: G. D. Barnett, Saskatchewan; W. B. Beatty, Nova Scotia; V. E. Dressler, Saskatchewan; C. R. Horton, U.S.A.; M. Katz, Ontario; H. R. McGann, British Columbia; G. A. Miller, U.S.A.; V. H. Radoux, Quebec; R. Riggall, U.S.A. and W. B. Stefaniuk, Saskatchewan. *Diploma in Dental Public Health*: D. G. Brett-Williams. *Diploma in Veterinary Public Health*: J. I. Higgins, Prince Edward Island and E. F. Pocock, Ontario. *Certificate in Public Health*: Cho-Man, Ho, Hong Kong and J. A. Shah, India. *Master of Applied Science*: B. R. Bourke; M. C. E. Fernando, Ceylon and C. P. Fisher, Ontario.

## Nova Scotia

DALHOUSIE UNIVERSITY, HALIFAX, is conducting a $3,500,000 expansion campaign. Funds will provide a new department of dentistry and new medical facilities.

DR. R. C. DICKSON, formerly of Toronto, has been appointed as Professor of Medicine at Dalhousie University. He succeeds Dr. C. W. Holland, who retired from the chair of medicine two years ago.

DR. C. E. AVERY DEWITT recently retired from his post as Acadia University physician after thirty-six years in that office. He has given generously of his time, serving as Medical Officer of Health of Wolfville.

DR. C. E. VAN ROOYEN has been appointed Professor of Bacteriology and Associate Provincial Bacteriologist at Dalhousie University. For the past ten years he has been Research Member, Connaught Medical Research Laboratories and Professor of Virus Infections, School of Hygiene, University of Toronto.

MISS H. HARRIS, who recently completed the requirements for an M.A. at Dalhousie University has been appointed to the staff of the Nova Scotia Hospital as Psychologist.

THE FOLLOWING NURSES have joined the public health nursing staff for a period of in-service training before going to University in September: Miss P. M. Lawley, Glace Bay; Miss M. I. Stephenson, New Waterford; Miss S. Sutherland, Yarmouth and Miss M. Shaw, Windsor Forks. Miss Mary Kuchinak, Public Health Nurse has transferred from Yarmouth to the Sydney area.

## Minutes—Public Health Nursing Section

CANADIAN PUBLIC HEALTH ASSOCIATION

As a Nominating and Resolution Committee Chairman had not been named last year, the executive consisted of chairman, vice-chairman and secretary. Miss E. A. Electa MacLennan, Director of the School of Nursing, Dalhousie University, Halifax, as chairman of the section, discussed the question of the length of chairmanship for secretaries, vice presidents etc. It was agreed that a vice-chairman should be chosen from the province where the meeting is to be held the next year.

Miss Frances King of Western University, London, Ontario, was elected chairman of the Nominating Committee and Miss Dorothy Fowler, Victorian Order of Nurses, Amherst, Nova Scotia, was elected chairman of the Resolutions Committee.

A letter received from the Canadian Nurses Association was read and Miss MacLennan then explained to the Committee a portion of the letter, quote: "As you know there are now only five national committees of the Canadian Nurses Association. Committees of interest groups have been eliminated in favour of the broader concepts of service and education in all fields. Although the Canadian Nurses Association no longer has a Committee on Public Health Nursing, the interests of nurses in the field of Public Health are important to and represented on all our committees. I use nursing service and education as examples. Both these committees are prepared to consider the problems of service and education in regard to all phases of nursing including public health nursing, setting up of special committees for specific projects as necessary. Rather than the interest groups being forgotten, it is now possible for them to refer their problems to committees which are representative of many areas of nursing. It is felt that with this interchange of ideas and co-ordination of projects, nurses in all areas will benefit."

After considerable discussion as to the value of setting up a manual containing by-laws, rules and regulations as they now exist, it was decided that the Chairman and the Secretary (Miss Phyliss Lyttle), since they were in close proximity, peruse all available material, and then circularize each Province. The material could be sent to the Chairman of the Provincial branches in the Provinces which have this set-up; otherwise they could be forwarded to the Directors of Public Health organizations.

The representative of the Public Health Nursing groups in each province would be asked to prepare a report and either submit the report to the Public Health Nursing section of the Canadian Public Health Association by April 30, 1956, or be prepared to give their report at the annual meeting in Saint John, New Brunswick in May 1956.

## DR. A. R. B. RICHMOND, 1880–1955

Born in Edinburgh, Scotland in 1880, Dr. Richmond came to Canada at the age of 15 in 1895. He graduated from the Ontario Veterinary College in 1911. He was appointed Director of Food Control in the Department of Health, City of Toronto and continued in this appointment until his retirement in June 1949, having served for nearly four decades in this office. Dr. Richmond served in World War I, enlisting as a private and later with the Royal Army Veterinary Corps as Captain. He was mentioned in dispatches for meritorious services.

He was President of the International Association of Milk and Food Sanitation in 1930 and took an active part in teaching, including instruction in the Ontario Veterinary College and in the School of Hygiene, University of Toronto. For many years he served as Examiner in Sanitary Inspection for the Canadian Public Health Association and continued after his retirement to assist in the instruction of sanitary inspectors and examination of candidates.

He died at his home in Toronto on December 18, 1955.

# EMPLOYMENT SERVICE

Advertisements regarding "positions available" and "personnel available" will be published in from one to three consecutive issues, depending upon the requirements of the agency or person concerned. They are limited to seventy words or less, with a confidential box number if desired. There is no charge for this service to members of the Association. Health agencies are charged a flat rate of $10.00 for the advertisements (up to four consecutive issues) and for the service. The rate for non-members is $5.00. The service includes confidential clearing of information between prospective employer and employee if desired.

**Public Health Nurses** required by the City of Vancouver. Qualifications: Candidates must be eligible for registration in British Columbia and must possess either a University degree or Certificate in Public Health Nursing. Salary $269 to $321 per month, benefit plans in effect. Application forms must be obtained from and returned to the Personnel Director, City Hall, 453 West 12th Avenue, Vancouver 10, B.C.

**Sanitary Inspector** required for the Peel County Health Unit. This health unit serves a suburban-rural area near Toronto. Salary range $2900 to $3500, initial salary determined by experience. For full information write Dr. D. G. H. MacDonald, Court House, Brampton, Ontario.

**Supervisor of Public Health Nursing** required. Generalized program in city of 43,000. Pension plan, Blue Cross and P.S.I. Workmen's Compensation, accumulative sick leave, transportation provided or allowance, five day week, month vacation with extra time at Christmas or Easter. For further information please write supplying details of training and experience to Dr. J. P. Wells, Medical Officer of Health, Peterborough, Ontario. 2–4

**Public Health Nurses** required for generalized program in Seaway Development area. Group insurance and Blue Cross available. Good transportation policy. Minimum salary $2700 with allowance for experience. Apply to Dr. R. S. Peat, Medical Officer of Health, Stormont, Dundas and Glengarry Health Unit, 104 Second Street West, Cornwall, Ontario. 2–5

**Public Health Nurse** required for the Peace River Health Unit, Peace River, Alberta. Duties to commence April 1, 1956. Salary in accordance with provincial schedule. Address replies to the Secretary, Peace River Health Unit, Peace River, Alberta. 2–3

**Applications** are invited for the post of Assistant Professor of Bacteriology. Initial salary $5000. Superannuation benefits provided. Duties commence July 1, 1956. Letters of application with details of qualifications and experience and names of two referees should be submitted not later than March 31, 1956, to Dr. J. W. Macleod, Dean of Medicine, University of Saskatchewan, Saskatoon, Canada.